A Multifaceted Approach Reduces Surgical Site Infection Rates, Incidents, and Associated Costs for Abdominal Hysterectomy and Caesarean Section Patients

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Quality Improvement Initiative

Project: Although our hospital adhered closely to evidence-based guidelines for SSI prevention, our rates were somewhat elevated. We conducted an analysis of SSI and identified the need for a quality improvement initiative which addressed:
- Improved and consistent skin antisepsis prior to entering the operating room.
- Risk-stratified antibiotic prophylaxis in patients with BMI ≥30 to ensure routine administration of 2 g Cefazolin in patients with BMI ≥30.

Literature Review: The literature review identified a study that reported improved SSI outcomes from January - July 2007 compared to January - July 2006 by using 2% chlorhexidine gluconate wipes for skin antisepsis prior to C-sections. We also reviewed well-known recommendations for appropriate perioperative antireumatic prophylaxis in surgical procedures considered high risk for SSI.

Interdisciplinary Collaboration: Results of chart reviews and literature search were presented to the following committees for review of evidence-based recommendations and for direction on design of the QI initiative: Infection Prevention, Perioperative, OB/CNM and Family Centered Care Team. Members of these committees consisted of professionals such as OB/CNM physicians, Hospital CEO, Nurse Managers, Quality Patient Safety Officers, Nurse Educators, Staff RNs & CTS, Pharmacist, Laboratory staff.

QI Interventions: The following interventions were developed based on the recommendations of the multidisciplinary committee:
- Hospital staff received education on using 2% CHG non-rinse wipes for skin antisepsis during unit staff meetings, through the Intranet, and during their annual skills-day education.
- SSI charts were presented to staff and at committee meetings on an ongoing basis.
- All patients would receive 2 gm of Cefazolin (increased from 1 gm) as an intervention to increase antibiotic prophylaxis and avoid administering an insufficient amount to those with elevated BMI (BMI ≥30). The first intervention of implementing increased dosage of Cefazolin was initiated in the first quarter for all patients undergoing C-sections and abdominal hysterectomy procedures. The use of CHG 2% non-rinse wipes intervention was initiated in C-sections at the end of the second quarter of 2010. By the end of 4th quarter 2010, all patients undergoing abdominal hysterectomy procedures were receiving the evidence-based SSI prevention efforts.

RESULTS

We compared SSI rates for C-sections and abdominal hysterectomies across three years, from 2009 through end 2011. The QI intervention resulted in a significant reduction in SSI rates (Figure 1) and substantial cost savings (Figure 2).

LESSONS LEARNED

SSI prevention is a continuous process requiring persistence in looking for improvement opportunities. Utilizing a multi-disciplinary approach helps to identify potential problems and implement changes.

In our efforts to improve processes and outcomes, we found that implementing the following two consistent practices brought about the most sustained impact on our patients undergoing abdominal hysterectomy and caesarean section:
1) Ensuring adequate dosing of antibiotics for all patients with BMI ≥30
2) Utilizing a 2% CHG non-rinse cloth for preoperative skin cleansing

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REFERENCES


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BACKGROUND/ISSUE

Surgical site infections (SSI) are one of the leading causes of healthcare-associated infections (HAI). They are associated with increased mortality/morbidity as well as prolonged length of stay and costs. K. Douglas Scott, II of the CDC reported in 2009 that SSI may cost anywhere from $10,443 to $29,434 per infection. As a specialty hospital for women, our largest surgery volumes are hysterectomies and cesarean sections (C-sections). We estimate our hospital’s SSI cost for these surgeries to be approximately $15,000 per infection (please see graphs). American College of Obstetricians and Gynecologists (ACOG) identifies abdominal hysterectomies as higher risk for SSI compared to vaginal approach. In spite of our evidence-based compliance with Surgical Care Improvement Project (SCIP) measures, our SSI rates remained elevated. A multidisciplinary approach was utilized to search for possible causes and preventive measures.